Title	***Storage Ring Tunnel Temperature Regulation Upgrade***			
Project Requestor	Glenn Decker			
Date	March 27, 2008			
Group Leader(s)	Glenn Decker			
Machine or Sector Manager	Louis Emery			
Category	Beam Stability			
Content ID*	APS_XXXXXX	Rev.	ICMS_Revision	ICMS Document Date

*This row is filled in automatically on check in to ICMS. See Note [1]

Description:

Start Year (FY)	**FY08**	**Duration (Yr)**	**4**

Objectives:

Improve APS storage ring tunnel temperature regulation to within +/- 0.1 degrees C.

Benefit:

Improved long term beam stability.

Risks of Project: See Note [2]

Will require a major redesign of the APS air handling systems.

Consequences of Not Doing Project: See Note [3]

Potentially will prevent the achievement of sub-micron long-term beam position stability.

Cost/Benefit Analysis: See Note [4]

This upgrade will be very expensive and as such the first two years should be spent conducting careful studies of the impact of thermal variations, and to develop a quantitative cost / benefit analysis prior to initiating major modifications. Alternative technologies such as mechanical sensors used to monitor bpm pickup electrode positions should be studied in detail.

Description:

During the first phase of the project, a preliminary cost estimate will be developed and evaluated in light of studies of the impact of tunnel temperature variations. Limited funds are requested during the first two years of the project to facilitate this study, which will be used to install mechanical position monitoring hardware at an insertion device vacuum chamber. Studies of the impact of tunnel temperature on component stability will enable a rational decision on how to proceed.

Funding Details

Cost: ($K)
Use FY08 dollars.

Year	AIP	Contingency
1	50	5
2	50	5
3	2000	2000
4	2000	2000
5		
6		
7		
8		
9		
Total	4100	4010

Contingency may be in dollars or percent. Enter figure for total project contingency.

Effort: (FTE)
The effort portion need not be filled out in detail by March 28

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1	0.1		0.1		0.02	0.02		0.24
2	0.1		0.1					0.2
3	2				3			5
4					4			4
5								0
6								0
7								0
8								0
9								0

Notes:

[1] **ICMS**. Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. C*heck Out* the previous version and C*heck In* the new version. Be sure to complete the *Document Date* field on the check in screen.

[2] **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work
include ... (If no assessment is appropriate then enter NA.)

[3] **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the facility. (If no assessment is appropriate then enter NA.)

[4] **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ___ will also result in improved reliability of ____. (If no assessment is appropriate then enter NA.)